TCFD RECOMMENDED DISCLOSURE

Climate Action is a key priority within Berkeley's business strategy, Our Vision 2030: Transforming Tomorrow, and we continue to develop our approach to this area.

Berkeley supports the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD).

We are also planning for the future based on emerging guidance such as the draft disclosure framework developed by the UK Government's Transition Plan Taskforce (TPT) and the International Sustainability Standards Board (ISSB).

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

INTRODUCTION

Berkeley has a long track record of action in relation to climate change. We set our first carbon reduction targets for our operations through the original Our Vision business strategy launched in 2010. Having identified flooding, overheating and water shortage as key issues in our 2014 risk identification exercise, we have also focused on climate change adaptation, creating new homes and places that are more resilient to the challenges of a warmer climate, which embrace the great potential of nature-based solutions.

Today, our direct business operations are carbon neutral, we procure 100% renewable electricity in the UK, have set science-based targets (SBTs) for reducing our scopes 1, 2 and 3 greenhouse gas emissions by 2030 and have been awarded an A- rating for Climate Action and Transparency by CDP.

BUSINESS AMBITION FOR 1.5°C

CDP DISCLOSURE INSIGHT ACTION

SCIENCE BASED TARGETS DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Climate Action remains a key strategic priority for the business and is embedded within Our Vision 2030: Transforming Tomorrow. Berkeley is playing an active role in addressing this global challenge and our climate action programme is holistic, involving transformational changes to our business operations and to the ways in which we design and create new places in partnership with our supply chain.

Undertaking Climate Scenario Analysis last year covering both physical and transition risks enabled us to develop our understanding of our exposure to potential risks. In summary, we have relatively low exposure to transition risk in the short-term, which could moderately rise in the medium-term (2030). Our physical risk profile relates to a mix of acute and chronic climate risks, such as windstorms, flooding and heat stress. This year we have reviewed our strategy against the results, confirming that it remained relevant, whilst improving our processes to ensure there is enhanced Group oversight of project-level risks.

Over the coming year we will develop our Net Zero Transition Plan to set out how we will contribute to and prepare for a rapid global transition towards a low GHG-emissions economy. The guidelines set out by the Transition Plan Taskforce (TPT) build upon the baseline of the TCFD, providing further granularity beyond the TCFD recommended disclosures in some areas.

Climate progress and roadmap

2010
Carbon reduction targets set for our operations since the launch of Our Vision in 2010.

2014
Climate change adaptation risk identification exercise identified flooding, overheating and water shortage as the key risks for the homes and places we develop.

2016
All new homes designed to incorporate climate change adaptation measures and a bespoke overheating risk assessment launched.

2018
First public disclosure on TCFD.

Procurement of 100% renewable electricity for UK operations and voluntary offsetting of residual scopes 1 and 2 emissions via verified projects.

2019
Undertook research and implemented the outcomes on designing low carbon homes.

2020
SBTs validated by the SBTi and new strategy for Climate Action launched covering five focus areas.

2022
Completed detailed Climate Scenario Analysis on future climate scenarios to inform our assessment of risks and opportunities.

2023
Achieved scopes 1 and 2 SBT.

Launched embodied carbon reduction targets at a project level.

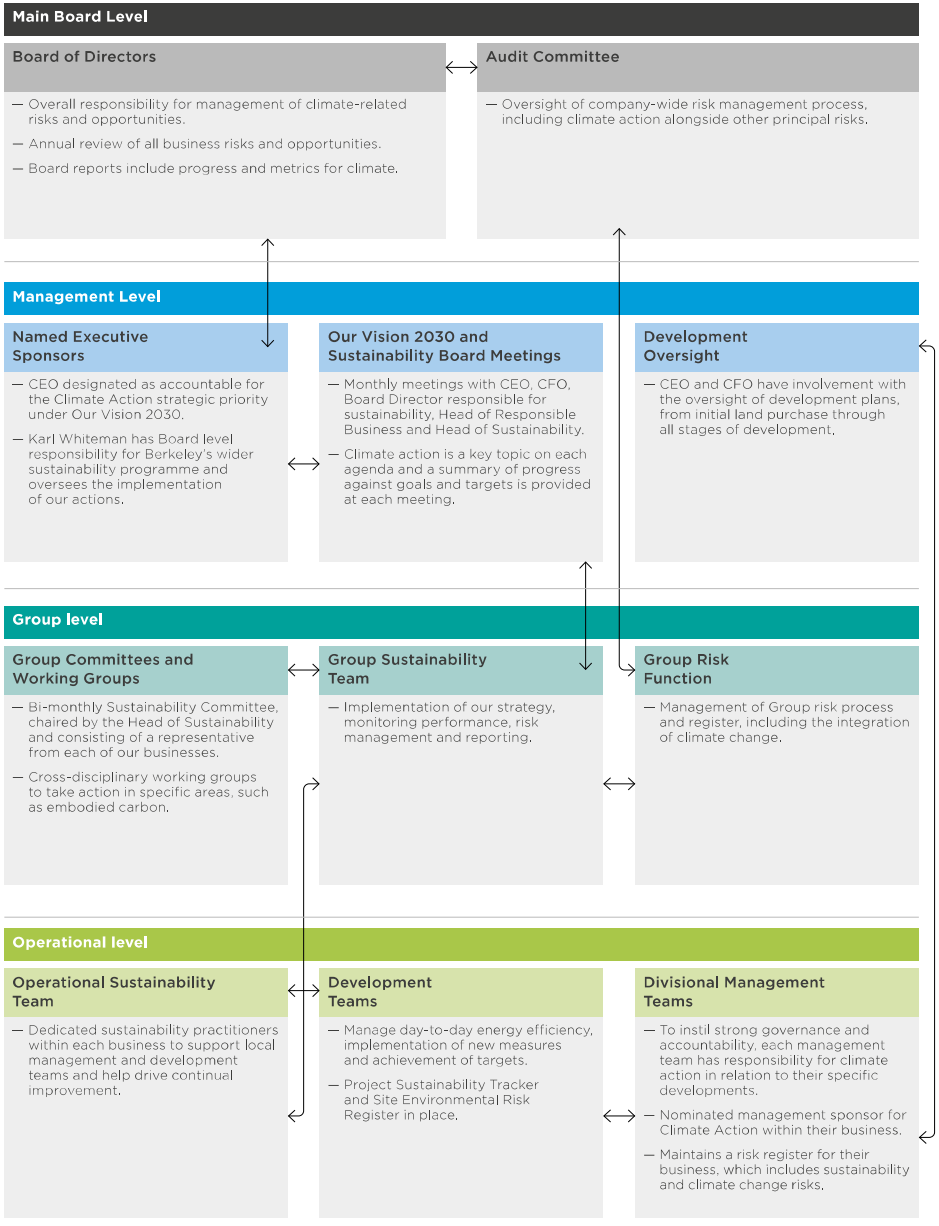
Embedding findings of Climate Scenario Analysis into risk management processes.

Disclosure level	Omitted	Partial	Full
	○	◐	●

This is our sixth disclosure under TCFD and we have reviewed the TCFD Recommendations, including the 2021 Annex supplemental guidance for materials and buildings. We are pleased to confirm that our disclosures are consistent with these guidelines and align with the UK Listing Rules (as referred to in Listing Rule 9.8.6R(8)), save for certain items which we summarise in the table below. Work is ongoing as our understanding of these areas has developed over the years and we have identified areas where more work is required. Our responses against these areas will develop in future reporting years.

Recommendation	Disclosures and disclosure level	Reference	Summary and next steps
Governance	a) Board's oversight ◐	Page 64	— The Board are provided with updates on Climate Action at each meeting as part of wider Our Vision 2030 reporting. — CEO and CFO attend monthly Our Vision and Sustainability meetings which provide a forum for discussing key actions around Climate Action, including goals and targets. — Climate-related issues are considered within business planning activity focused at a development level, with further work planned in this area in the future.
	b) Management's role ●	Page 64	— Executive Directors have been assigned climate-related responsibilities. — Our Vision 2030 and Sustainability Board meetings bi-monthly. — CEO and CFO have oversight of development plans.
Strategy	a) Climate-related risks and opportunities ●	Pages 66 to 73	— Climate change and sustainability are key risks monitored as part of the wider risk management process. — Climate Scenario Analysis completed across the short-, medium- and long-term, with financial scenarios and probabilistic loss modelling undertaken where possible. — The Climate Scenario Analysis highlighted key transitional and physical risks.
	b) Impact of risks and opportunities ◐	Pages 66 to 73	— Material risks are being monitored and initial actions are in place to implement mitigation measures. — Further work is ongoing to consider the impact of climate-related issues on areas such as our supply chain.
	c) Resilience of strategy ●	Page 65	— A number of different climate scenarios have been modelled to assess our resilience. — Potential risks and exposure have been highlighted.
Risk Management	a) Risk identification processes ●	Page 66	— Climate-related risks recognised as one of the principal risks impacting Berkeley. — Main Board, Group Sustainability team and operational teams all part of the process for assessing risks and relative importance.
	b) Risk management processes ●	Pages 67 to 73	— Operational teams monitor climate-related risks and opportunities on each development. — Mitigation measures undertaken at a project level.
	c) Integration with overall risk management ●	Page 73	— Climate risk identified as a standalone risk since 2018 as part of the Berkeley's approach to risk management. — Annual assessment undertaken as part of the risk management processes.
Metrics and Targets	a) Metrics to assess risks and opportunities ◐	Pages 74 to 77	— Relevant metrics identified and disclosed. — Internal carbon price used to drive action. — An ESG underpin is applicable to the Restricted Share Plan element of the 2022 Remuneration Policy. Refer to page 136 of the Remuneration Report. — Further work required to develop financial metrics around, for example, activities vulnerable to climate-related risks.
	b) Scopes 1, 2 and 3 GHG emissions and risks ●	Pages 74 to 77	— Scopes 1, 2 and 3 emissions monitored and disclosed. — Science-based targets in place across all scopes.
	c) Targets to manage risks and opportunities ◐	Pages 74 to 77	— Relevant metrics identified and disclosed, with additional metrics available in the ESG metrics table on page 58. — Further work is required to develop targets.

GOVERNANCE



⟷ Main communications pathways

STRATEGY

Climate Action is a strategic priority for the business within Our Vision 2030. Our Climate Action strategy is shaped around five focus areas, each with defined targets, to respond to the key areas of risk and opportunities for the business.

These are supported by more detailed Sustainability Standards which set our minimum requirements across our operations and our supply chain, to ensure we are aligned to deliver the objectives, priorities and milestones outlined within the strategy.

We have near-term SBTs for GHG emissions reduction by 2030 covering scopes 1, 2 and 3 which were validated by the SBTi in December 2020. These will help shape our transition to becoming a net zero carbon business in the long-term.

Berkeley acknowledges the definition of net zero launched by the SBTi in 2021, namely that scopes 1, 2 and 3 emissions should be reduced through near-term SBTs and in the long-term by at least 90%, and that any residual emissions at the net zero target date are neutralised. We plan to set out our Net Zero Transition Plan in the forthcoming year, in line with this definition and using the disclosure framework that is being developed by the UK Government's Transition Plan Taskforce. See page 46 for further details.

This year we have reviewed our strategy and supporting arrangements against the findings of the detailed Climate Scenario Analysis undertaken last year (see the table below for further details). This process identified that the strategy was still relevant and appropriate based on the risks and opportunities identified. Minor adjustments were made to our internal processes to ensure that there is enhanced Group level oversight of project-level risks such as subsidence.

Progress against our climate action strategy can be found within the Our Vision 2030 section on pages 44 to 45. Metrics and targets are included on page 74.

Climate Action focus areas

Focus area	Description	Why is this a focus?	Risks and opportunities identified
Embodied carbon	**Scope 3 – category 1** (purchased goods and services) These carbon emissions relate to the activities of our supply chain. They arise from the energy used to extract raw materials, process them into construction materials and transport these to our sites, together with the activities of companies who provide a service to us (from consultants to architects and contractors working on our sites).	When we baselined our emissions for the development of our SBTs, the majority were found to relate to embodied carbon. We have the ability to drive these emissions down through design, specification and procurement choices to reduce the quantity and impact of materials.	— Raw material cost
Low carbon construction sites	**Scopes 1 and 2** This is carbon that is related to our own activities. It comes from energy used on construction sites, the modular facility, sales suites and in our offices.	We directly control these emissions and have the ability to reduce these.	— Carbon pricing and emissions offsets
Low carbon homes	**Scope 3 – category 11** (use of sold products) This is carbon from the use of energy by our customers. It is associated with energy usage regulated via the Building Regulations (such as heating, hot water and lighting) and excludes usage from appliances and plugged in devices.	A significant proportion of our emissions relate to the homes that we are creating for our customers. We have the ability to influence how sustainable they are through design and specification.	— Demand supply imbalance — Planning and design requirements — Skills shortage impacting ability to install low carbon technology — Technology evolution
Climate change resilience	Preparing our business for anticipated changes to climate and taking action to mitigate the risks. Incorporating adaptation measures in the developments we build to ensure more resilient places for our customers and future residents in decades to come.	We are mindful that climatic changes will occur and may affect the homes we build. We consider anticipated changes in our designs to seek to mitigate the risks.	— Heat stress — Drought stress — Subsidence — Windstorm — Flood
Balancing our impacts	In our journey to becoming a net zero business, we must focus our attention on reduction, but we are mindful of balancing our impacts from residual emissions.	We voluntarily procure offsets for scopes 1 and 2 whilst on our journey towards net zero.	— Carbon pricing and emissions offsets

Engagement

Our supply chain is key to reducing our scope 3 emissions. We engage with our designers, materials suppliers and those trade contractors who purchase materials on our behalf to understand how to reduce the impact of the buildings.

We also collaborate with industry organisations and initiatives focused on improving how companies in the built environment sector impact the natural world. These include being a partner member of the UK Green Building Council and the Supply Chain Sustainability School, together with being an active member of the Construction Leadership Council's Green Construction Board and a founding member of the Wildfowl and Wetlands Trust Blue Recovery Leaders Group. Further information on our stakeholder engagement can be found on pages 79 to 83.

Climate Scenario Analysis

Berkeley evaluates climate-related risks and opportunities as part of our ongoing risk assessment process with climate change and sustainability identified as principal operating risks that we proactively review and action.

Last year, in response to the TCFD recommendations, we expanded our risk assessment process to incorporate future climate scenarios.

Berkeley assessed:

1. Risks and opportunities relating to the transition to a lower carbon economy
2. Risks relating to the physical impacts of climate change in relation to Berkeley's land holdings as at 31 October 2021

The results of the Climate Scenario Analysis are still considered to be relevant and we will continue to use them within our strategic planning processes. It is our intention to periodically update the analysis, as new information and modelling becomes available and as changes are made to our land holdings.

Scenarios

We have selected climate scenarios drawing from widely used publicly available and peer reviewed sources. These include the Intergovernmental Panel on Climate Change (IPCC) sixth assessment report (AR6) and other representative sources including the International Energy Agency (IEA). The scenarios we have selected are not intended to be forecasts for the future, but provide mechanisms to assess plausible outcomes against which Berkeley can assess its risks.

For transition risks, the representative scenarios assessed are a below 2°C scenario and limiting global warming to 1.5°C (Net Zero 2050 scenario). Where it is possible to differentiate across these two scenarios the assessment focused on the Net Zero 2050 scenario, in line with the Paris Agreement targets. High emissions and an associated increase in global temperatures is expected to generate changes in acute and chronic weather events that are associated with higher physical risks. Our scenario analysis on the physical risks therefore selected a high emissions 4°C scenario, in addition to the 1.5°C (Net Zero 2050 scenario).

See the table below for more detail.

Summary of scenarios

Net Zero 2050 – 1.5°C scenario
— Actions are taken to reduce emissions in the short-term and consequently high transition risk is experienced — Physical risks are less severe than under the 4°C scenario and broadly similar to the 2°C scenario
Below 2°C scenario
— Actions are taken to reduce emissions in the short-term, albeit slightly less aggressive than the 1.5°C scenario, and consequently high transition risk is experienced — Physical risks less severe than under the 4°C scenario and broadly similar to the 1.5°C scenario
Hot House World – 4°C scenario
— Increased level of warming associated with greater levels of acute and chronic weather events — Geographic climatic shift in the South East of the UK

Time horizons

Risks were assessed against the following time horizons:

— Transition risks were assessed in relation to aggressive climate mitigation measures in both short-term (to 2023) and medium-term (to 2030) time horizons, which correlates to the timing horizons and target setting within Berkeley's Our Vision 2030 strategy. Transition risks were not assessed in the longer term due to the difficulty in building assumptions around the direction of policy out to 2050 or beyond.

— Physical risks were assessed over the long-term to 2050 as this is when the most significant impacts are likely to manifest.

Transition risks and opportunities

Transition risks occur in response to aggressive climate mitigation to move to a less polluting and lower carbon economy. With the support of Willis Towers Watson (WTW) and through discussions with specialists across the business, we identified 14 transition risk and opportunity drivers under the recommended TCFD categories of Policy & Legal, Technology, Market and Reputation.

Transition risk and opportunity drivers

Policy and legal
— Pricing of GHG emissions — Emissions offsets — Increasingly stringent planning and design requirements — Climate change litigation — Enhanced emissions reporting obligations
Technology
— Electric vehicle (EV) use — Substitution of existing technologies to lower emission options — Skill shortages impacting ability to install low carbon technology
Market
— Change in customer demands — Increased cost of raw material — Cost of capital
Reputation
— Investment risk — Stakeholder risk — Employee risk

Exposure	Low	Medium	High
Risk	○	◐	●
Opportunity	○	◐	●

Scenario analysis was used to 'stress-test' Berkeley Group's resilience to transition risk by considering the level of exposure under a Low Carbon Economy, where temperature rise would be limited to Well Below 2°C this century. The analysis concentrated where possible on a 1.5°C scenario (i.e. NGFS Net Zero 2050) in line with the Paris Agreement.

Risks were assessed in terms of impact and likelihood via a series of subject matter expert interviews from Berkeley and follow up discussions. We assessed these qualitatively, and where possible, quantified potential impacts. Where the risks allowed for quantification, financial scenarios were identified to understand the potential magnitude of risks and were quantified based on data from external and internal sources, aligned to Berkeley's typical risk management rating criteria. Given the relatively low residual exposure to transition risk, as set out in the ensuing table, no update to the financial assessment for the 2023 time horizon was undertaken during the current year.

Of the risks and opportunities, seven were identified as having a potentially greater impact on Berkeley, albeit none of these are considered individually material in the context of the Group's current year financial statements. Overall the Group has relatively low residual exposure to transition risk in the short-term, although emissions offset and increased cost of raw materials present moderate risk. In the medium-term (2030), Berkeley is more moderately exposed, partly due to risks associated with moving to lower emission technologies, such as the use of less established suppliers and obsolete technology. Higher costs could also be incurred in 2030 as a result of the increasing intensity of carbon pricing policy. Whilst not financially quantified, skills shortages are expected to be moderate by 2030. Changing customer demands, cost of capital, stakeholder risk, and employee risk are all considered to present minor opportunities.

Overview	Risk exposure & mitigation	Short-term impact[1]	Medium-term impact[1]
Pricing of GHG Emissions and Emissions offsets Carbon pricing includes both direct carbon taxes and the cost of offsetting emissions. Aggressive climate mitigation could lead to implementation of carbon tax regimes, and an increase in the cost of emissions offset.	**Procurement of REGOs** Since 2018, Berkeley has been carbon neutral in its operations (covering scopes 1 and 2 emissions) through purchasing 100% renewable electricity in the UK and offsetting remaining emissions. Demand for REGOs which Berkeley procures for its UK electricity generation is expected to rise. In the short-term the additional cost of REGOs is likely to be less than £1 million. By 2030, the supply of REGOs is expected to stabilise as electricity use is anticipated to continue to shift away from fossil fuel sources. **Procurement of offsets** The additional cost of emissions offset for scopes 1 and 2 by 2030 is likely to be less than £1 million under a 1.5°C scenario, based on UK carbon price projections from the Network for Greening the Financial System (NGFS). **Journey to net zero** Under Berkeley's long-term plans to become a net zero business, depending on supply chain actions and technology advances in the meantime, residual scope 3 emissions may need to be offset at a point beyond 2030. This will be confirmed as part of the Net Zero Transition Plan being developed. The cost of this could be significant given the relative size of scope 3 emissions compared to scopes 1 and 2 (see targets and metrics page 74), over £10 million per annum, although this amount and timing thereof is uncertain. **Future carbon taxes** The introduction of direct carbon taxes through UK regulation in relation to scopes 1 and 2 emissions, if implemented by 2030, would result in a new annual cost which is likely to be less than £1 million.	○ £0 – £1.0 million per annum in relation to the cost of REGOs	◐ Could be £0 – £1.0 million per annum in relation to the cost of scopes 1 and 2 emissions Beyond 2030 this is uncertain, but may exceed £10 million per annum in the event of scope 3 offsets

Exposure	Low	Medium	High
Risk	○	◐	●
Opportunity	○	◐	●

Overview	Risk exposure & mitigation	Short-term impact[1]	Medium-term impact[1]
Planning and design requirements As part of its effort to meet its 2050 Net Zero target, it is possible that the UK will need to increase the stringency of building planning and design requirements. Berkeley would be required to respond to these changing regulations which may have a cost impact.	**Different heating solutions** In the short-term, homes on future phases of developments that are under construction may require a different heating solution from current planned solutions, for example switching to the installation of air source heat pumps. These changes have been anticipated so there is little additional cost impact expected. **Changes in planning regulation** In the longer term, planning regulation is not anticipated to lead to significant costs as emerging requirements will form part of development appraisals at the land purchase stage or subsequently. Berkeley actively participates in Government consultations relating to future Building Regulations to help shape the direction of future regulation.	○ Not anticipated to be an impact	○ Not anticipated to be an impact
Skills shortages impacting ability to install low carbon technology In order to reduce emissions to meet more stringent planning requirements and sustainability targets Berkeley will need access to skilled workers. If sufficient investment and training is not provided, there could be a shortfall in supply of suitably qualified professionals.	**Industry resourcing** Berkeley is exposed to industry-wide resourcing issues. Whilst these are currently not specific to low carbon technology, in the medium-term there could be an increase in labour shortages, in part due to an aging workforce and the need to upskill workers for net zero. Whilst it is not possible to quantify the financial impact of this we are taking practical steps to mitigate the current skills shortage. Berkeley is part of The 5% Club, maintaining at least 5% of its workforce in formal training and we work with our supply chain to support and encourage training opportunities. **Upskilling our people** We upskill our staff through internal training modules on sustainability available via our Learning Management System. This year we ran an energy awareness campaign to educate our people on the low carbon technologies being deployed on our sites and in our homes and how to communicate this to our customers. We continue to be committed to tackling these issues and incorporating our climate action targets into the day-to-day lives of our workforce.	○ Not quantified	◐ Not quantified
Technology evolution The replacement of systems that are dependent on fossil fuels could result in higher costs. There is also a risk that technologies selected at the outset of a planning process could become outdated and obsolete upon building completion as a result of the development of lower emission alternatives. Over the longer-term, increasing pace of technological adaptation may accelerate risk of obsolescence.	**Changing energy solutions for our homes** Electrification of residential heating is likely to be encouraged through the Future Homes Standard. The pace of our progress may be hampered by planning regulations and at points in time there is a risk we will not be able to deliver optimal technologies as the Building Regulations adjust more slowly to emerging technologies. Berkeley continually assesses nascent technologies and has already invested in heat pumps and photovoltaics. In some cases, particularly in our out of London sites, we are ensuring we put in place the necessary localised infrastructure upgrades to support additional electrical loads ahead of the Future Homes Standard. Consequently, there are no significant additional costs expected in the short-term. **Emerging technologies** In the longer-term, the inherent risk is that the market for the latest technologies is nascent, which gives a risk of unreliable supply chains and reputational damage should technology selected for our developments not perform as expected. Consequently, the potential costs could be significant, although are considered unlikely as regulation and supply chain testing mean the adoption of untested technologies remains improbable.	○ Not anticipated to be an impact	○ Not anticipated to be an impact

Overview	Risk exposure & mitigation	Short-term impact[1]	Medium-term impact[1]
Raw material cost The cost of raw materials could increase if suppliers pass through the impact of Carbon Pricing for high carbon building materials. For example, widely used steel, concrete, cement and glass all have energy intensive production which could require increased energy input costs.	**A diverse supply chain** Berkeley has a diverse supply chain drawing material from a wide range of suppliers. Berkeley regularly assesses its material costs as part of its development appraisals. **Rising costs in energy intensive materials** Under a 1.5°C scenario energy intensive raw materials such as steel, concrete and glass will be particularly impacted by carbon driven cost increases in the absence of alternative technological advances. In response, Berkeley is undertaking embodied carbon studies to better quantify the emissions within the materials of our developments to inform future design. The marketplace will also evolve as suppliers decarbonise their own direct activities, technology evolves and macro-economic factors impact costs (and house pricing). In the short-term, there is a low exposure to cost increases. Nonetheless, by 2030 the inherent risk from additional raw material costs could be significant (exceeding £10 million per annum) relative to the cost today, although it is inherently difficult to disassociate this cost from other market forces and technology advances (both positive and negative).	○ £0 – £1.0 million per annum	◐ Uncertain but may exceed £10 million per annum
Demand supply imbalance There is an inherent risk that by 2030, as energy prices increase, property buyers will favour lower carbon homes and expect greater energy operational efficiency. Conversely, strong sustainability-related credentials evidenced through a proven delivery track record should improve the prospects of higher demand for Berkeley's homes.	**Customer demand for sustainable homes** Whilst in the short-term the scale of opportunity for higher demand is not necessarily significant, increasing climate awareness and Berkeley's focus on climate action and wider Our Vision 2030 initiatives are anticipated to influence customer demand positively over the next decade. Berkeley's focus on urban, brownfield regeneration development is also inherently more sustainable. In addition, customer preference for new build over second-hand housing stock could further support demand for more efficient homes, with the latest technologies. Responding to the increasing barriers to entry as regulation rapidly changes will require experienced and well capitalised companies; this could further reduce the supply of new homes.	○ Not quantified	○ Not quantified

1. Financial impact is shown as increase in costs

In addition to those presented in the table in the preceding pages, there were a further seven risks and opportunities explored, three of which relate to reputation. WTW and subject matter experts from various functions within the business assessed Berkeley as having a very low exposure to these, as summarised briefly as follows:

Risks

- **Enhanced emissions reporting obligations** requirements may impact the business and supply chain by 2030 For instance, this could include regulatory requirements to produce EPDs or materials passports. Our data collection process is constantly under review with additional metrics being assessed each year. As data sets expand we are exploring the most efficient and precise methodologies to collect our climate data.
- **Climate change litigation** may increase in the future as claims could be brought against companies for alleged contributions to climate change or a failure to disclose climate change-related financial risks. We continue to disclose sustainability data in line with climate disclosures such as SASB, TCFD and CDP.

Opportunities

- **Electric vehicle use** will rise, with the IEA suggesting that these may form 30% of all passenger journeys by 2030 under a below 2°C scenario. Berkeley has been an early adopter and is expanding its EV charging points alongside the GLA policy and the development of EV infrastructure guidance within Building Regulations (Part S).
- **Cost and availability of capital** could be impacted by climate change considerations. Last year, Berkeley issued a Green Finance Framework and raised a £400 million Green Bond and £260 million green term loan under this framework, with a commitment to continuing our strategy around Climate Action and the broader Our Vision 2030 priorities.
- **Reputational risk from investors and stakeholders and employee perceptions** are inherent risks which Berkeley is exposed to. For Berkeley, this represents a potential opportunity as we maintain our leading position on sustainability through Our Vision 2030 and through the stakeholder engagement we undertake in relation to our developments. Read more about our stakeholder engagement on pages 79 to 83.

Physical risks

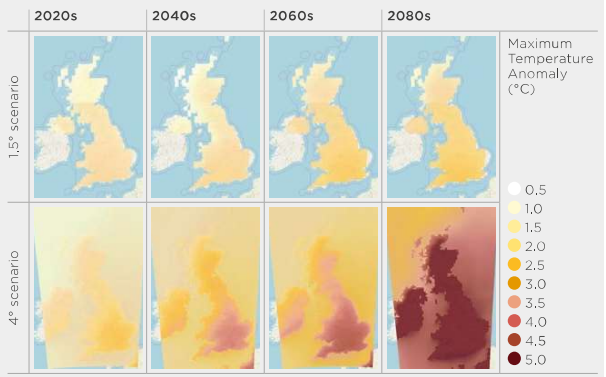
Last year Berkeley undertook a comprehensive physical risk analysis of its land holdings as of 31 October 2021 against current and future climate scenarios with the support of WTW. This year, as there have been no significant changes to our land holdings, the findings of the climate scenario analysis are still relevant. We have improved our processes to ensure that we have an enhanced oversight of project-related risk related to its findings.

The analysis concentrates on a longer timescale (to 2050) than transition risks (to 2030) given physical risks typically manifest over a longer period.

Alongside a longer timeframe, many physical risks are likely to increase regionally under higher emissions scenarios. Therefore, to assess our risk exposure, we included a climate scenario focused on the 'Hot House World' which reflects a 4°C rise in global temperatures, in addition to a 1.5°C scenario. This provides an insight into the impact to our homes and developments were the world not to meet the conditions of the Paris Agreement to limit global warming to well below 2°C and preferably to 1.5°C. It should be noted that Governments are aligned to the less than 2°C scenario.

Under the 'Hot House World' scenario, there is anticipated to be an increased likelihood of a range of acute and chronic climatic events. The analysis showed us that under this scenario broad areas of the UK will see an increase in heatwave days, and a corresponding increase in the occurrence of prolonged drought stress. Increases in precipitation with drier summers and wetter winters could also increase the prevalence of subsidence conditions. Figure 1 illustrates heat stress as an example, showing the UK maximum summer time temperature anomalies under a 1.5°C and 4°C scenario compared to a 1981 – 2000 baseline.

Figure 1: UK maximum temperature anomalies under a 1.5°C and 4°C scenario
Temperature variance measured against the 1981 – 2000 baseline, UKCP18 projections (June – August)



Exposure assessment
For each risk category, we have undertaken an assessment of exposure. This is the proportion of homes in our land holdings that will experience the effects of climate change, primarily due to climatic shifts that will impact the whole of our primary operating region in the South East of the UK. Berkeley's developments are considered exposed in 2050 if they are located in a geographic area where a climate hazard may occur. The degree of that exposure is defined by the frequency and/or severity (intensity) of that particular hazard. To identify potentially material unmitigated exposure, WTW utilised well-recognised models from the insurance industry and UK specific climate data.

The tables that follow summarise the predominant physical risks for both the 1.5°C and 4°C scenarios in 2050 and focus on the exposure for the 4°C scenario.

Probabilistic loss modelling
In addition to the exposure analysis, a financial impact assessment of the acute risks (windstorm and flood events) was completed to represent the potential unmitigated and uninsured financial impact. This was undertaken through probabilistic modelling utilising insurance market recognised catastrophe risk models. This methodology was performed by WTW and is widely used in the insurance industry to price insurable catastrophic risk when considering insurance premiums.

Using Geographical Information System (GIS) tools and an extensive database of building design characteristics for each site exposed to flood or windstorm in 2050, the potential unmitigated event losses were calculated. The benchmarks used to assess this are defined as a 'severe year' and an 'extreme year', representing probability of 0.5% and 0.1% or a 1 in 200 year return period (a severe year) and a 1 in 1,000 year return period (an extreme year), respectively.

The figures presented in the acute risks table below represent physical loss to all sites that formed part of the land holdings at 31 October 2021 which comprised around 63,000 homes. It is before any mitigation or adaptation measures and irrespective of insurance or other recovery or consideration of financial responsibility for any such losses. Berkeley already insures against potential losses from catastrophic events and under a 4°C scenario the primary cost exposure for Berkeley could be an increase to insurance premiums for assets under construction.

Chronic risks

Risk identified	Present day risk	Risk under 1.5°C scenario	Risk under 4°C scenario
Heat stress	Present day heat stress is very low throughout the UK such that all of our sites currently have very low exposure (less than five heatwave days in a given year).	Heat stress increases from the current very low level to a generally low risk level by 2050. This could mean over five heatwave days annually.	Heat stress increases gradually and becomes a moderate risk beyond 2050 towards the end of the current century. This could mean frequent heatwaves (more than 20 days annually).
	Berkeley's exposure in 2050 and beyond under 4°C scenario The majority of England and Wales (in particular South East, South West and the Midlands) will be exposed to more material heat stress by mid-century. Correspondingly, 84% of Berkeley's homes will be exposed to heat stress in the decades beyond 2050. **Berkeley's actions** The potential for overheating in our homes arises through heat stress from climate change and the urban heat island effect. Overheating risk is now incorporated within the 2021 Building Regulations, launched in 2022 with a 12 month transition period. This ensures that all project teams are assessing and mitigating against this risk. Where homes are deemed to be at a higher risk, more detailed dynamic thermal modelling is undertaken. Potential mitigation measures may include thicker insulation to external walls, smaller windows with thermally efficient glass, incorporating shading through the design such as brise soleil to reduce heat gain, balconies and enhanced ventilation. In addition, Berkeley incorporates soft landscaping which can partially mitigate the heat island effect.		

Risk identified	Present day risk	Risk under 1.5°C scenario	Risk under 4°C scenario
Drought stress	Present day drought conditions can be approximated to a low emission scenario in the short-term. Under such a scenario, all of Berkeley's sites currently have a very low exposure to drought (less than two months of drought duration in a year).	Drought stress conditions continue to have a relatively low risk (two to three months of drought duration in a year) by 2050.	Drought stress becomes more significant by the 2050s, which would see three to four months of drought duration annually. The main implications from drought stress are water scarcity and impact on green areas of our developments.
	Berkeley's exposure in 2050 and beyond under 4°C scenario Similar to heat stress, the majority of England and Wales (in particular South East, South West and the Midlands) will be exposed to more material drought conditions by mid-century. Correspondingly, 92% of Berkeley's homes will be exposed to drought conditions for three to four months annually in the decades beyond 2050. A significantly smaller proportion (5%) of homes could see drought conditions for six months of the year. **Berkeley's actions** We reduce water usage by designing water efficient homes with water efficient fixtures and fittings. We follow an integrated water management approach, whereby rainwater is stored and released into natural features to help manage surface water. The management of water run-off through attenuation offers significant opportunities to hold water for reuse in the home and our landscapes. We recently commissioned guidance by the Wildfowl and Wetlands Trust (WWT) for our teams on integrating blue and green infrastructure into our developments. We also consider the impact of drought on the design of our green spaces by incorporating drought resilient planting. Berkeley's Sustainability Standards are in place to set minimum water efficiency measures and standards for areas such as rainwater harvesting and SuDS for all project teams.		

Chronic risks continued

Risk identified	Present day risk	Risk under 1.5°C scenario	Risk under 4°C scenario
Subsidence	Present day ground conditions mean that building design addresses the risk of subsidence, with current regulations for high-rise buildings catering for design tolerance.	Subsidence conditions and susceptibility for soils like clay are likely to be influenced in the 2030s and further increase beyond 2050 due to warmer and drier summers as well as wetter winters.	Subsidence conditions and susceptibility for soils like clay are likely to be influenced in the 2030s and further increase beyond 2050 due to warmer and drier summers as well as wetter winters.

Berkeley's exposure in 2050 and beyond under 4°C scenario
Large areas in the South East and Eastern England are exposed to increasing subsidence conditions, including Greater London and the Thames Estuary due to the clay soils.

The soil conditions for 90% of Berkeley's current homes could potentially be impacted beyond 2050.

Berkeley's actions
The risk of subsidence is assessed at a project level prior to land acquisition. During detailed design, external experts undertake further assessment and ensure appropriate measures are incorporated to mitigate these risks.

In London, where the risk of subsidence is linked to the underlying London clay, our developments have piled foundations which are engineered to ensure the buildings are anchored deep into the ground. There are additional factors of safety margins for foundations/piling already in place which mitigates against the risk of subsidence.

For our housing developments, the foundation design is agreed with specialist consultants to ensure it is appropriate for the underlying geology and risk of subsidence.

Acute risks

Risk identified	Present day risk	Risk under 1.5°C scenario	Risk under 4°C scenario
Windstorm	Present day exposure to windstorm already exists for all of Berkeley's sites. The main implication from windstorms are physical damage to completed property and construction assets.	There is no current scientific consensus that the UK will see an increase in windstorm intensity and the risk therefore remains unchanged from the present day.	There is no current scientific consensus that the UK will see an increase in windstorm intensity and the risk therefore remains unchanged from the present day.

Berkeley's exposure in 2050 and beyond under 4°C scenario
The typical windstorm hazard could pose a moderate risk for 100% of Berkeley's sites. This does not reflect a change to the present day levels of exposure or probability of such risk.

Probabilistic loss modelling
There is no current scientific evidence that windstorm intensity and frequency in the UK under a 4°C scenario will lead to a significant change in potential losses from the present day risk that Berkeley's sites already face.

Berkeley's actions
Each of our developments is designed by specialist teams, selecting appropriate materials and fixing details which can withstand local conditions. In respect of mid-rise to high rise buildings, wind engineering includes dynamic or physical modelling, analysis and testing at the pre-planning stage. Façade design ensures mechanical fixings to areas such as roofs and balconies to resist elements being removed by high wind, as well as other mitigating features such as screening and planting.

In terms of the occupation of our buildings, mitigation includes wind alerts from anemometers being communicated to residents with instructions to close windows and secure loose objects from high level amenity spaces.

High winds also pose a risk to construction operations. We monitor alerts for high wind events and send bulletins to our site teams ahead of storms to ensure site safety measures are adhered to. Our tower cranes are fitted with anemometers to alert the crane driver and safe lifting team, thus preventing crane operations during high winds.

Acute risks continued

Risk identified	Present day risk	Risk under 1.5°C scenario	Risk under 4°C scenario
Flood	In present day conditions, only 6% of Berkeley's sites are deemed to be materially exposed to flooding (between 1 in 100 and 1 in 500 probability), given the predominance of Berkeley's portfolio in London and the flood defences in place in London. The main implication from flood is physical damage to completed property and construction assets.	Across the UK, peak river flows are expected to increase by 2050 and beyond, with the South East expected to experience fluvial peak flow increases of 8%. Consequently, the risk of flood exposure could slightly increase compared to the present day conditions.	Under this scenario it is projected that peak river flows in the South East will increase significantly (by 33%) in the 2050s leading to an increase in river flooding. There would likely be increased exposure to coastal flooding from sea level rise, as well as surface and groundwater flooding from heavy rainfall.

Berkeley's exposure in 2050 and beyond under 4°C scenario
By 2050 there are no further sites exposed beyond the 6% of sites already at risk in the present day. However, the exposure to flooding may increase for these particular sites which could therefore flood more often.

Probabilistic loss modelling
The modelling estimates that by 2050 the physical damage from flooding under a 4°C scenario could exceed £27 million in a severe year (i.e. 1 in 200 year return period) and £60 million in an extreme year (i.e. a 1 in 1,000 year return period).

Berkeley's actions
Flood risk is assessed pre-acquisition for all sites. Flood risk assessments have been a standard part of our development planning and design for many years if the developments fall within a flood zone. The flood risk assessments vary in extent based on the potential risk and already include allowances for the effects of climate change. Our homes are designed to the flood risk that is identified in the flood risk assessment. This includes designing to a 1 in 30 year, 1 in 100 year or 1 in 1,000 year flood. Within our developments, design mitigation measures include raising the levels of the lower floors and designing SuDS to hold and store water in times of extreme rainfall.

This year we have taken action to ensure Group oversight of project-level flood risk, in line with our reported SASB disclosure (see page 60).

RISK MANAGEMENT

We recognise climate-related risks as one of the principal risks impacting Berkeley, and since 2018 it has been identified as a standalone risk. Our climate-related risk management process is aligned to our broader strategic processes. To read more about Berkeley's approach to risk management and how we manage risk see pages 86 to 89 of the Strategic Report.

The Board takes overall responsibility for risk management (including climate risks) and the Audit Committee ensures the effectiveness of risk management and internal controls on behalf of the Board.

Climate risk information is updated at least annually by the Head of Responsible Business and Head of Sustainability. Changes to the risk level are based on a range of factors such as emerging legislation (e.g. The Future Homes Standard) and customer feedback. This information is provided to the Board through incorporation into the Group's risk register. The in-depth Climate Scenario Analysis undertaken last year further informed our risk assessment processes and was overseen by Karl Whiteman and the CFO.

To instil strong governance and accountability within Berkeley's autonomous operating companies, each management team has responsibility for climate action in relation to their specific developments and have a nominated management sponsor within their business.

Each operating company maintains a risk register for their business, which includes sustainability and climate change risks, whilst at a development level, the Project Sustainability Tracker and Environmental Risk Register identify risks and monitor action taken

METRICS AND TARGETS

Berkeley monitors a range of metrics to support our targets in the area of climate action. Detailed GHG emissions information is located in the Directors' Report (including disclosure across scopes 1 and 2) on pages 159 to 161 and the ESG performance table on pages 58 to 59. Our key metrics for climate action are our SBTi validated SBTs measuring emissions against a 2019 baseline.

Scopes 1 and 2 emissions

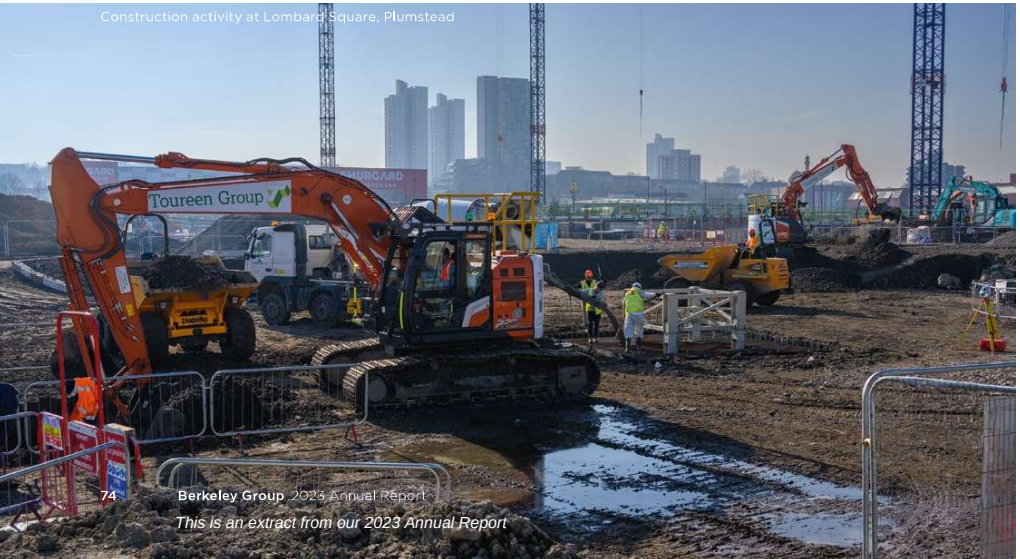
Science-based target: reduce absolute scopes 1 and 2 GHG emissions by 50% by FY2030 from a FY2019 baseline year.

We are pleased to report that we have achieved our absolute scopes 1 and 2 (market-based) emissions target seven years early, exceeding our 50% reduction target with a 76% decrease since the baseline year of 2019. The decrease has largely been driven by an increase in the use of biodiesel HVO (Hydrotreated Vegetable Oil) on our construction sites; 95% of fuel directly purchased for use in the year has been this low carbon alternative. Further information on our scopes 1 and 2 emissions, including our methodology, is contained within the Directors' Report on pages 159 to 161.

76%
reduction
since our baseline year FY2019

Metric	Unit	2023	2022	Baseline 2019	Link to focus areas	Link to key risks
Absolute scopes 1 and 2 (market-based) emissions	tCO_2e	963 (A)	2,211	3,980		- GHG emissions pricing
Percentage change in emissions compared to FY2019 (SBT base year)	%	**-76**	-44	–		- Emissions offsets
Energy consumption associated with scopes 1 and 2 emissions	MWh	30,420 (A)	36,335	35,681		
Energy consumption from renewable sources	%	**89**	76	60		

(A) 2023 information has been separately subject to limited assurance by KPMG LLP. Further details of the assurance provided in 2023, including the independent assurance report and our methodology for reporting emissions, can be found at www.berkeleygroup.co.uk/sustainability/reports-and-case-studies



Construction activity at Lombard Square, Plumstead

Scope 3 emissions

Science-based target: reduce scope 3 purchased goods and services and use of sold products GHG emissions by 40% per square metre of legally completed floor area.

We recognise that our most significant impacts, around 99%, occur across our value chain (scope 3), including the activities of our supply chain ('embodied carbon') and the energy use by our customers in homes once sold ('low carbon homes').

Since our 2019 baseline year, there has been a 6% decrease in emissions intensity against our science-based target to reduce by 40% by 2030.

We have been taking actions to improve our understanding and the data accuracy of these impacts since we set our SBTs. Reductions in emissions from dedicated action taken at a project level can take some time to be realised, due to there often being several years between the planning phase of a project and legal completions occurring. However, we are of the view that the results of work underway now will lead to demonstrable reductions in the future.

6%
reduction
since our baseline year FY2019

Use of sold products (scope 3: category 11)

We continue to use the Dwelling Emission Rate (DER), calculated for homes in line with Government's Standard Assessment Procedure (SAP) methodology to estimate the carbon impact of our homes over their lifetime (60 years in line with industry best practice guidance). We anticipate significant reductions in this area in the coming years in light of the more stringent Building Regulations which became effective in June 2022 (with a one-year transition period) and the forthcoming Future Homes Standard expected to be required from 2025.

Our understanding of emissions reporting in this area and that of the wider industry is evolving and we expect further data enhancements in the future. For example, our current methodology does not take into account the anticipated decarbonisation of the UK electricity grid over the 60-year lifetime of the homes. With the update of the Building Regulations and forthcoming Future Homes Standard we are also cognisant of the likely change in SAP methodology to use primary energy, accompanied by a potential preference in the future for energy intensity in use to be a more representative metric of emissions from homes than the DER. We will continue to work with industry as the methodology develops and ensure our reporting reflects the prevailing and accepted methodology.


Hollyfields, Hawkenbury

Table A – Scope 3 emissions using updated methodology (CEDA Global)

Metric	Unit	2023	2022	Baseline 2019	Link to focus areas
Absolute scope 3 emissions (categories 1 and 11)	tCO_2e	**574,709** Ⓐ	638,017	585,690	
Scope 3 emissions intensity	tCO_2e/100 sq m	**161**	177	171	
Percentage change in emissions intensity compared to FY2019 (SBT base year)	%	**-6**	4	–	
Absolute emissions for category 1: Purchased goods and services	tCO_2e	**321,314** Ⓐ	369,515	352,087	
Emissions intensity for category 1: Purchased goods and services	tCO_2e/100 sq m	**90**	103	103	
Absolute emissions for category 11: Use of sold products	tCO_2	**253,395** Ⓐ	268,502	233,603	
Emissions intensity for category 11: Use of sold products	tCO_2/100 sq m	**71**	74	68	

Link to key risks
- GHG emissions pricing
- Emissions offsets
- Planning and design requirements
- Skills shortages
- Technology evolution
- Raw material cost
- Physical climate risk

Ⓐ 2023 information has been separately subject to limited assurance by KPMG LLP. Further details of the assurance provided in 2023, including the independent assurance report and our methodology for reporting emissions, can be found at www.berkeleygroup.co.uk/sustainability/reports-and-case-studies

Table B – Scope 3 emissions using previous methodology (CEDA v5.0)

Metric	Unit	2023	2022	Baseline 2019
Absolute scope 3 emissions (categories 1 and 11)	tCO_2e	**1,077,251**	1,125,843	1,096,682
Scope 3 emissions intensity	tCO_2e/100 sq m	**302**	312	321
Percentage change in emissions intensity compared to FY2019 (SBT base year)	%	**-6**	-3	–
Absolute emissions for category 1: Purchased goods and services	tCO_2e	**823,856**	857,341	863,079
Emissions intensity for category 1: Purchased goods and services	tCO_2e/100 sq m	**231**	238	253
Absolute emissions for category 11: Use of sold products	tCO_2	**253,395**	268,502	233,603
Emissions intensity for category 11: Use of sold products	tCO_2/100 sq m	**71**	74	68

Embodied carbon (scope 3: category 1)

When setting our SBT in 2020 we adopted a methodology based upon spend data to estimate the embodied carbon of materials and this remains our primary methodology for external reporting. We recognise the limitations of reporting embodied carbon emissions based on spend data alone, and therefore have carried out 23 detailed embodied carbon assessments in the last two years, studying the impact of the design of the buildings and material choices and quantities. These assessments are now undertaken as standard practice at planning and design stages, enabling our project teams to make more informed decisions and to take tangible action to reduce the carbon impact of each development.

In any financial year the challenge we – and others in the industry – face is to demonstrate the impact of a number of different developments at different stages in the project lifecycle, each with a complex and often global supply chain of materials. This issue is compounded at Berkeley by our bespoke approach to development, with each site having a unique design and procurement undertaken locally by each of our operating businesses, and by the length of time our developments span.

Using a combination of our spend data and more detailed data from the site-specific assessments, we are now in a position to better understand the embodied carbon of our buildings. We are also investigating improvement in material delivery data collation at a site level. Through these steps we plan to evolve our reporting away from the spend-based methodology towards more specific material data calculations in future years.

Recognising that the reliable reporting of embodied carbon data is an issue facing wider industry, we are actively working as part of the UK Green Building Council (UKGBC) and Future Homes Hub working groups to define a standardised approach moving forward. At a global scale, in May 2023 the Science Based Targets initiative (SBTi) launched a consultation for the buildings industry to ensure the criteria and guidance for building companies to set science-based targets are robust, clear, and practical. We are pleased to have responded to the consultation to aid the development of the guidance due for publication in autumn 2023. We welcome further clarification on this topic and agreement on a consistent methodology for calculation and reporting across the sector.

We continue to use Comprehensive Environmental Data Archive (CEDA) which is listed by the GHG Protocol as an available third-party database to assist users in collecting data for product lifecycle and corporate value chain (scope 3) GHG inventories to convert our spend data to emissions.

During the year, CEDA launched an updated database 'CEDA Global' which provides multi-regional input-output (MRIO) information, including UK-specific conversion factors for the first time. Compared to CEDA v5.0 which had a 2014 base year, emission factors in CEDA Global have a 2018 base year. The new factors take into account the effect of global decarbonisation activities since 2014 and are based on additional region-specific data sources, such as emission factors published by the Department for Environment, Food and Rural Affairs (DEFRA). Together with macroeconomic changes, improvements in global GHG emissions understanding and calculations, and efficiencies in technologies along with an improved use of renewable energy sources, there has been a significant drop in the conversion factors from CEDA v5.0 to CEDA Global.

Whilst we continue to improve our understanding of carbon reporting and our practices to reduce the impact of our site activities, we have adopted this newest database for enhanced data quality. However, for maximum transparency, and to ease comparison for readers, we have presented our emissions under both CEDA v5 and CEDA Global this year for all years presented, including our SBT base year (2018/19). These are shown in Table A, with calculations under the previous CEDA v5.0 shown in Table B for transparency.

We also have broader targets with associated metrics as part of our climate action roadmap:

Target	Metric	Unit	2023	2022	Link to focus areas	Link to key risks
Maintain carbon neutral operations across scopes 1 and 2 emissions using REGOs and verified carbon credits	Purchased electricity backed by REGOs	%	**98.7**	99.0		GHG emissions pricing; Emissions offsets
	Purchased electricity in the UK backed by REGOs	%	**100**	100		
	Number of verified carbon credits procured for voluntary offsetting	#	**1,011**	2,322		
	Percentage of scopes 1 and 2 (market-based) emissions offset by verified carbon credits	%	**100**	100		
Implement measures to manage climate risks for our developments and business	Completed homes in regions with High or Extremely High Baseline Water Stress	%	**89**	85		Heat stress; Drought stress
	Average water efficiency of homes completed	lpppd	**102.6**	104.2		
	Live development sites that have sustainable drainage systems (SuDS)	%	**100**	92		
	Live development sites that have assessed overheating risk	%	**76**	68		
Reduce scope 3 use of sold products GHG emissions	Completed homes with an EPC rated A or B	%	**93**	89		Planning and design requirements; Skills shortages; Technology evolution
	Average Dwelling Emission Rate (DER) of completed homes	$kgCO_2$/m2/yr	**12.13**	12.85		
	Average percentage improvement in DER over Target Emission Rate (TER) for completed homes	%	**31**	31		
	Completed homes with an Environmental Impact Rating (EIR) of B or above	%	**98**	–		